

Acid News

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SHIP EMISSIONS

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More clean air per euro at sea

Cutting ship emissions would be far more cost-effective than further measures for land-based sources.

BY APPLYING TECHNICAL emission control measures that are already available, emissions of sulphur and nitrogen oxides from international shipping in European sea areas could be reduced by 80 to 90 per cent. Moreover, most of these measures are much more cost-effective than additional measures for further reducing emissions from land-based sources.

These are some of the conclusions of a new report¹ prepared for the European Commission by a consortium of consultants, and released in October. The aim of the report is to assist activities in the

EU for the implementation of the 2002 Maritime Emissions Strategy and the 2005 Thematic Strategy on Air Pollution, as well the ongoing negotiations under the International Maritime Organisation on the revision of its MARPOL Annex VI (see separate article on p. 5).

According to the report, the vast majority – approximately 95 per cent – of emissions from international shipping in Europe are produced by larger vessels, i.e. bigger than 500 gross registered tonnes (GRT). For these larger vessels, roughly 95 per cent of SO₂ and NO_x emissions are

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Acid News

A newsletter from the Swedish NGO Secretariat on Acid Rain, the primary aim of which is to provide information on air pollution and its effects on health and the environment.

Anyone interested in these matters is invited to contact the secretariat. All requests for information or material will be dealt with to the best of our ability. Acid News is available free of charge.

In order to fulfill the purpose of Acid News, we need information from everywhere, so if you have read or heard about something that might be of general interest, please write or send a copy to:

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THE SWEDISH NGO SECRETARIAT ON ACID RAIN

The Secretariat has a board consisting of one representative from each of the following organizations: Friends of the Earth Sweden, the Swedish Anglers' National Association, the Swedish Society for Nature Conservation, the Swedish Youth Association for Environmental Studies and Conservation, and the World Wide Fund for Nature Sweden.

The essential aim of the secretariat is to promote awareness of the problems associated with air pollution, and thus, in part as a result of public pressure, to bring about the needed reductions in the emissions of air pollutants. The aim is to have those emissions eventually brought down to levels – the so-called critical loads – that the environment can tolerate without suffering damage.

In furtherance of these aims, the secretariat

- Keeps up observation of political trends and scientific developments.
- Acts as an information centre, primarily for European environmentalist organizations, but also for the media, authorities, and researchers.
- Produces information material.
- Supports environmentalist bodies in other countries in their work towards common ends.
- Participates in the lobbying and campaigning activities of European environmentalist organizations concerning European policy relating to air quality and climate change, as well as in meetings of the Convention on Long-range Transboundary Air Pollution and the UN Framework Convention on Climate Change.

EDITORIAL

Concentrations and depositions of air pollutants are significantly influenced by emissions from international shipping. In contrast to the progress in reducing emissions from land-based sources, shipping emissions show a continuous increase.

Emissions of SO₂ and NO_x from international shipping in European sea areas are expected to increase by between 40 and 50 per cent by 2020. By then the emissions from international shipping around Europe will have surpassed the total from all land-based sources in the EU.

In order to meet EU environmental targets it is necessary not only to curb this increase in emissions from shipping, but also to drastically reduce them. Several studies prepared for the European Commission have demonstrated that feasible and cost-effective means are available (*see article on front page*).

In its resolution of 26 September 2006 on the thematic strategy on air pollution, the European Parliament calls for the Commission to come forward with proposals:

- to establish NO_x emission standards for ships using EU ports;
- to designate the Mediterranean Sea and the North-East Atlantic as sulphur emission control areas (SECAs);
- to lower the maximum allowed sulphur content in marine fuels used in SECAs and by passenger vessels from 1.5% to 0.5%;
- to introduce financial instruments such as taxes or charges on SO₂ and NO_x emissions;
- to encourage the introduction of differentiated port and fairway charges favouring vessels with low emissions of SO₂ and NO_x;
- to encourage the use of shore-

side electricity by ships when in ports;

- for an EU directive on the quality of marine fuels.

Regarding the first point, back in December 2003 the Council of Ministers invited the Commission to come forward with a proposal

for tighter NO_x standards by the end of 2006, if IMO had not put forward any proposals by then.

Reports from ongoing talks in the IMO for strengthening global fuel and emission standards indicate that progress is very slow (*see article on p. 5*), and that any specific proposals

for new global NO_x standards will not be adopted this year.

On top of legally binding emission or fuel requirements, economic instruments represent a necessary addition, because they can help to bring about both faster and greater reductions than are likely to be attainable solely through EU and IMO procedures. If economic instruments are to be properly effective, they must however also be arranged so as to further the internalizing of the environmental costs of shipping.

By demanding a number of specific measures, the European Parliament has shown the way. It is now high time for the Commission and the member states to accept their responsibility and give joint backing to the Parliament's proposed measures.

Shipping's character of an international business has been used as an excuse or manoeuvre to delay environmental action for too long. It is not acceptable for the shipping industry to transfer the cost of its pollution to society at large – rather, it must accept responsibility for its air emissions and substantially clean up them up.

CHRISTER ÅGREN

Shipping industry must accept responsibility for its air emissions



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The best place to spend the money.

More clean air per euro at sea

Continued from front page

estimated to emanate from cargo ships. Nearly half of the emissions in the region originate from ships with EU flags. It is also estimated that about 20 per cent of ships' total emissions are released within the 12-mile coastal zones, and that approximately five per cent of the SO₂ emissions are emitted at berth.

Ship emissions already contribute significantly to the health and environmental damage caused by air pollution in Europe. The anticipated increase in ship emissions (*see box pp. 4-5*) will counteract the envisaged benefits of the efforts to control emissions from land-based sources. Technologies exist however to reduce emissions from shipping beyond what is currently legally required.

80-90 per cent reduction

The study has identified a set of emission control measures that are technically available, and which could – if fully applied – reduce by 2020 the SO₂ and NO_x emissions from international shipping by nearly 80 and 90 per cent, respectively,

compared to the baseline case.

The costs of these measures, which include the use of low-sulphur (0.5%) fuels and catalytic exhaust cleaning (SCR), are estimated at 5.5 billion euro per year in 2020. For comparison, the costs of the measures proposed by the thematic strategy for further reductions by land-based sources were estimated at 7.1 billion euro per year in 2020.

Packages of measures

Some selected specific packages of measures that could deliver emission reductions at lower costs were also explored.

- Internal engine modifications for all ships built after 2010 and retrofitting the low-speed engines of existing (pre-2000) vessels with slide valves. Compared to the baseline case, by 2020 this would reduce NO_x emissions by approximately nine per cent (which however still leaves a 33 per cent increase compared to year 2000). The costs for these measures are estimated at 26 million euro per year.
- The use of fuel with a maximum sulphur content of 0.5 per cent (or seawater scrubbing resulting in equivalent emissions) in the

North Sea and Baltic, slide valve retrofits for existing low-speed engines and humid air motors for all newly built vessels (post-2010). Compared to the baseline case, by 2020 this package would reduce SO₂ and NO_x emissions by 14 per cent and 28 per cent respectively. Compared to emission levels in 2000, emissions would increase by 23 per cent for SO₂ and 7 per cent for NO_x. Implementation would cost some 773 million euro per year.

Far lower marginal cost

A comparison of the emission reduction options for ships with those outlined in the Thematic Strategy for land-based stationary sources, shows that the technical measures for marine sources could yield reductions of approximately three times as much SO₂ and seven times as much NO_x as have been proposed for land-based sources. For SO₂, approximately 80 per cent of this potential can be achieved at marginal costs that are less than 15 per cent of the highest marginal costs for the measures proposed for land-based sources. For NO_x, the low-cost potential represents about 70 per

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More clean air per euro at sea

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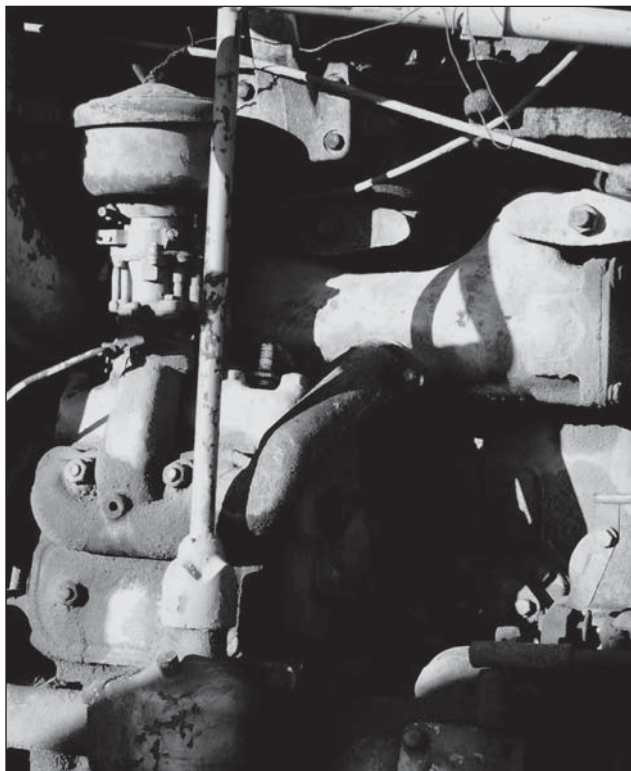
cent of the technical potential considered in the study.

The cost-effectiveness of measures for ships relative to land-based measures cannot be judged from marginal abatement costs only, but also need to consider the damage to health and the environment caused by emissions, i.e. it also has to take into account atmospheric dispersion characteristics.

For this study this is being done by using the RAINS integrated assessment model, which brings together information on abatement costs and atmospheric dispersion characteristics, thus enabling comprehensive cost-effectiveness analyses to be undertaken. Such analysis is currently being performed for the ongoing revision of the national emission ceilings (NEC) directive. (A proposal for a revised NEC directive is expected by mid-2007.)

Full assessment to come

A full assessment of the cost-effectiveness of ship emission controls was not finalized in time for this interim report, but there are plans to per-



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Room for improvement. Not all ship engines are state-of-the-art.

form such analyses in the context of the NEC directive revision process, using the information generated in this study.

However, the current report contains an "initial and incomplete" comparison of the health and environmental impacts of the various ship emission control scenarios investigated. Based on this comparison, it is concluded that

measures aimed at reducing ship emissions will be an essential element of a least-cost strategy.

According to the report, a more detailed analysis of the cost-effectiveness of measures for specific sea regions, distinguishing contributions within and outside the 12-mile zones, and considering differences between cargo ships and passenger ferries is likely to identify even larger benefits from targeted emission control strategies. Such an analysis is planned for the forthcoming policy scenarios in the context of the revision of the NEC directive and which will be reported in the first half of 2007.

CHRISTER AGREN

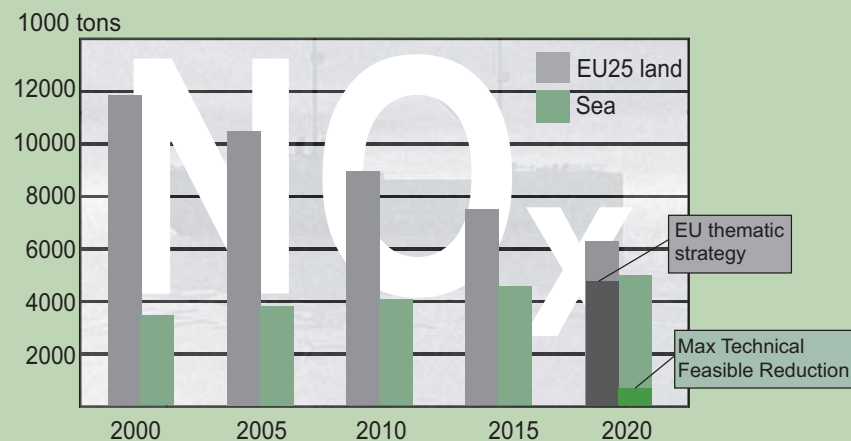
¹ Analysis of Policy Measures to Reduce Ship Emissions in the Context of the Revision of the

National Emissions Ceilings Directive (Interim report, October 2006). Consultancy report to the European Commission's DG Environment by the International Institute of Applied Systems Analysis, Entec UK Limited and the Norwegian Meteorological Institute. The report is available from: http://forum.europa.eu.int/Public/irc/env/cafe_baseline/library?l=/thematic_strategy/contract_emissions&vm=detailed&sb=Title

Shipping emissions increasingly important

MARITIME ACTIVITIES are already responsible for a significant fraction of emissions of air pollutants in Europe. It is estimated for the year 2000 that SO₂ and

NO_x emissions from international shipping in European sea areas amounted to approximately 25–30 per cent of the land-based emissions in the EU25.



Baseline scenario for emissions of NO_x (in kilotonnes) up to 2020 from land-based sources in EU25 and from international shipping in European sea areas. Source: IIASA 2006.

Land-based emissions in the EU are expected to decline in coming years. The baseline projections prepared for the ongoing revision of the National Emission Ceilings (NEC) directive indicates that by 2020, current EU legislation for land-based sources would lead to a reduction of SO₂ emissions of between 56 and 67 per cent, and of NO_x emissions by between 45 and 50 per cent, compared to the year 2000.

Based on an analysis of the costs and benefits of further measures, the European Commission proposed in September 2005 in its Thematic Strategy on Air Pollution more stringent environmental objectives that imply the need for more far-reaching reductions of about 82 per cent for SO₂ and 60 per cent for NO_x, by 2020.

There are also some measures in force

New global pollution standards debated

The oil industry turns down a bold proposal for the shipping industry to switch to cleaner fuel by 2010 as impractical, warning of fuel supply uncertainties.

IN MID-OCTOBER, the industry group Intertanko made a bold proposal for all ships to switch from conventional heavy fuel oil to lighter distillate fuel oil by 2010, and at the same time establish a global sulphur cap for marine fuels of 1.0 per cent, which should later be strengthened to 0.5 per cent for new ships (see box on following page).

This and other proposals to reduce ship emissions of air pollutants were debated at an intersessional meeting of a subcommittee to the Marine Environment Protection Committee (MEPC) of the International Maritime Organisation (IMO), held in Oslo, Norway on 13-17 November. Pursuant to an MEPC decision in 2005, IMO is presently considering revisions to the international standards on emissions from ships of sulphur dioxide (SO₂) and nitrogen oxides (NO_x) and also

considering the regulation of PM emissions for the first time.

Oil industry negative

Commenting on the Intertanko proposal, the secretary-general of the IMO, Mr. Mitropoulos said that it: "may be as significant a change as when ships first changed from coal to oil". Several countries, as well as environmentalist groups, expressed interest and general support for the proposal. The oil industry, however, was clearly negative, claiming that such a change was impractical in the given timeframe, and some countries were also sceptical.

To put the Intertanko proposal into perspective, the current global cap is 4.5 per cent, although in practice the average sulphur content of marine fuels is about 2.7 per cent. In Europe the sulphur content is already limited to maximum of 1.5

per cent in one of the two special protection areas (SECAs), namely the Baltic Sea. The same limit will also apply to the North Sea (including the English Channel) from autumn 2007.

Not surprisingly, the discussion on options to reduce SO₂ emissions was largely dominated by reactions to Intertanko's proposal. The proposal would produce substantial environmental benefits. Not only would the use of reduced-sulphur distillate fuel reduce emissions of SO₂ and PM significantly, it would also allow the more effective use of advanced emission control devices, such as selective catalytic reduction to reduce NO_x.

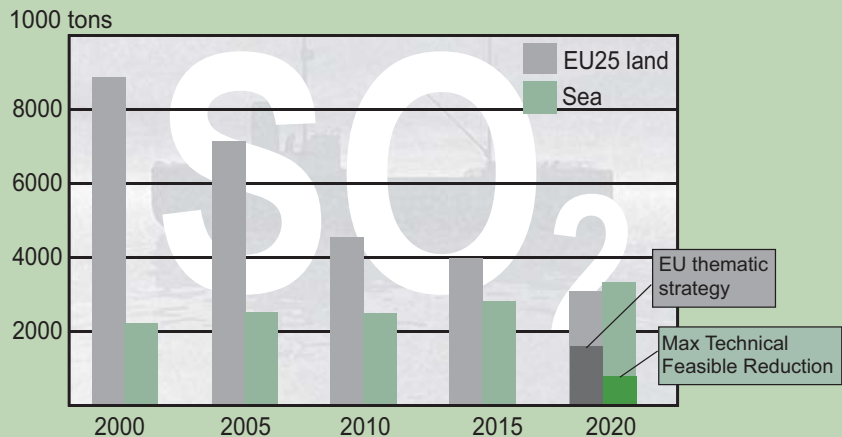
Focus on supply uncertainty

While the Intertanko proposal would result in higher fuel costs

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to address emissions from international shipping, such as the 1997 MARPOL Annex VI of the International Maritime Organisation and the 2005 EU directive on the sulphur content of marine fuels. But these are clearly inadequate, and the expected increase in the volume of ship movements will far outweigh the limited positive environmental effects of these measures.

Consequently, under business-as-usual assumptions, SO₂ emissions from international shipping in European waters are projected to increase by 42 per cent between 2000 and 2020, NO_x emissions by 47 per cent and PM_{2.5} emissions by 56 per cent. Without additional measures, by 2020 the emissions from international shipping would then come close to the projected baseline emission levels for land-based sources, and even surpass



Baseline scenario for emissions of SO₂ (in kilotonnes) up to 2020 from land-based sources in EU25 and from international shipping in European sea areas. Source: IIASA 2006.

the target levels established in the Thematic Strategy on Air Pollution for land-based

sources, in particular for SO₂ by a factor of two (see graphs).

CHRISTER ÅGREN



On the list. Norilsk, Siberia

Top-ten polluted areas identified

The world's ten most polluted places threaten the health of more than ten million people in eight countries, according to a report by a US environmental action group. Three of the most polluted sites are in Russia, the report said, with the remaining seven located in China, the Dominican Republic, India, Kyrgyzstan, Peru, Ukraine and Zambia.

The report was released by the Blacksmith Institute and compiled by a team of international environment and health experts. "A key criterion in the selection process was the nature of the pollutant," said Richard Fuller, director of the Blacksmith Institute. "The biggest culprits are heavy metals – such as lead, chromium and mercury – and long-lasting chemicals, such as the persistent organic pollutants. That's because a particular concern of all these cases is the accumulating and long-lasting burden building up in the environment and in the bodies of the people most directly affected."

According to the report, there are some towns where life expectancy approaches medieval rates, where birth defects are the norm not the exception. The goal of the report is to make sure that the most highly polluted sites get the necessary attention and support from the international community in order to tackle the problems. The report is available from: <http://www.blacksmithinstitute.org/get10.php>

Source: Environment News Service, 18 October 2006

New global pollution standards debated

Continued from previous page

for ship owners, the opposition, including the oil industry, focused primarily on the fuel supply uncertainties. However, some pointed out that the refining industry would most likely move toward producing increased volumes of distillate fuels anyway, and that the Intertanko proposal would simply speed up that inevitable process.

Focus on basic options

In the end, the group agreed to focus the future debate on SO₂-related measures on a few basic options. One would be to keep the current structure of regulation, but lower the sulphur limit in SECAs, first from 1.5 to 1.0 per cent (possible target year 2010), and later to 0.5 per cent (possible target year 2015). A variant of this option would be

to reduce the global sulphur cap as well.

An alternative would be to follow the proposal by Intertanko (see Box). A significant variant of this would be to allow the use of residual fuel meeting the same sulphur limits, or alternative methods (such as flue gas scrubbing) to meet equivalent sulphur limits.

New engine standards for NOx

Regarding NOx, a consensus appears to be emerging that favours a two-stage approach to new engine standards, with initial standards to be effective around 2010, and a second set around 2014-15. Most delegations supported a first stage for new ships limited to in-engine modifications, producing reductions of 10-20 per cent, as compared to current new engine standards. Second-stage reductions would most likely involve flue gas treatment, but there was no consensus on reduction targets.

There was some discussion about geographically defined NOx standards, either along the lines of SECAs (which must be nominated by shore states and approved), or a coastal zone pre-defined at a fixed distance from shore. No significant progress was made regarding NOx reductions from existing ships.

No progress on PM reduction

Although there appears to be general agreement that the best current option for reducing PM emissions is to reduce sulphur limits in the fuel, the discussion on PM reductions really didn't progress very far, probably because some people still perceive there to be a need for better information on the characteristics and transport of PM emissions from ships.

The benefits of the Intertanko proposal on PM emissions were noted, in that both lower sulphur levels and cleaner distillate fuel will result in significantly lower PM emissions as compared to high-sulphur residual heavy fuel oil. Seawater scrubbing continues to be pushed by some industry groups, and the meeting agreed to a UK proposal to allow states the option of conducting trials with economic instruments (including emissions trading) within their national sea areas.

The Intertanko proposal

THE ASSOCIATION FOR independent tanker owners and operators, Intertanko, proposed in October in a submission to IMO the establishing of a global sulphur cap of 1.0 per cent as from 2010, to be lowered to 0.5 per cent as from 2015. The latter limit is to apply to new ship engines only, i.e. those installed as from 2015. It was moreover proposed that as from 2010 all ships would use only one type of fuel, namely distillate fuel.

According to Intertanko, their proposal would result in large reductions in SO₂ and PM emissions, as well as reductions in NOx and CO₂ emissions from ships, with no other investment than a higher price for the fuel.

It would eliminate the need for bunker treatment plants currently onboard ships, and also reduce the amount of generated fuel waste that needs to be stored, handled and treated onboard.

The use of distillate fuel only would mean that ships around the world would use a single, well-defined type of fuel, which would simplify the monitoring and control of fuel quality compliance as well as enhancing safety. It would also facilitate the use of advanced flue gas emission control devices.

Spain goes for solar heating

Under new Spanish legislation all newly built or renovated houses must get 30–70 per cent of their hot water from solar heating. The variable percentage depends on the location of the house. According to calculations by the Spanish authorities this measure will reduce energy consumption in buildings by 30–40 per cent. Building companies insist that it will increase building costs by 8–12 per cent, while housing minister Maria Antonia Trujillo quotes a figure of one per cent. Some 2.5 million square metres of solar collectors are expected to be installed in Spain by the year 2010. Around one million square metres of solar collectors are installed in Germany each year.

Source: Miljörapporten Direkt, 17 November 2006

California ports strengthen clean air plan

Acting on recommendations from the public and regulatory agencies, the ports of Los Angeles and Long Beach have revised their Clean Air Action Plan.

The ports will explore the use of pollution-based impact fees, so that polluters play their part in improving air quality. By helping to finance a new generation of clean vehicles, “dirty” diesel trucks from San Pedro Bay cargo terminals could be eliminated within five years.

The ports will develop tariff-based incentives and requirements, such as vessel speed reduction incentives, to curb harmful air emissions, and develop shore-side electricity for ships at berth.

Even as trade grows at the two ports, the plan aims to cut diesel-related particulate matter pollution by more than 47% and smog-forming NOx emissions by more than 45% within the next five years, resulting in emissions that will be below 2001 levels. Emissions of sulphur dioxide should be cut by more than 52%.

With more than US\$260 billion a year in trade and more than 40% of the nation’s containerized cargo, the ports of Los Angeles and Long Beach are the two largest container seaports in the United States.

Source: Environmental News Service, 6 November 2006



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Oil industry knows how to do it offshore.

NGOs advocate fuel switch

A coalition of European and American international environmentalist organizations, formally represented at the IMO by Friends of the Earth International, attended the meeting and pressured the shipping industry to promptly switch to cleaner fuels and put air pollution controls on both new and existing ship engines.

Environmentalists want intermediate reductions

Based on the emission reduction potential of current technology and cleaner fuel supplies, the environ-

mentalists urged the IMO to require intermediate reductions of 40-50 per cent in SO₂ and NOx by 2010, and 70-90 per cent reductions in these emissions by 2015.

At the end of the meeting, participants were urged to submit specific proposals for consideration at the next subcommittee meeting, which is scheduled for April 2007. Here, the aim is to agree on recommendations that are as specific as possible, and submit these to the full MEPC, which will meet in July 2007. MEPC will then consider the new draft standards for approval.

CHRISTER ÅGREN
DAVID MARSHALL

Canadian cities fight dirty US coal power

On 1 November, Canadian municipalities representing over five million people formally petitioned the US Environmental Protection Agency (EPA) to reduce contaminant emissions from coal-fired power plants in seven midwestern states. Under the US *Clean Air Act*, the EPA must require emission reductions when there is evidence of harm to Canadians from American sources.

The petition cites evidence from international reports documenting the flow of air pollution from the US into Canada. Ontario government data show that about half of the 5,000 premature deaths caused by smog in the province each year are attributable to transboundary pollution. Acid rain, for which NOx and SO₂ are the major precursors, continues to be a major problem in Eastern Canada. International reports confirm the need for a further 75% reduction in contaminant emissions to bring lakes and rivers back to health.

The 150 power plants identified in the petition emit in total more than all major Canadian industrial sources of these contaminants combined.

For more information, see: <http://www.sierralegal.org/index.html>



Should come at a cost, a UK government report says.

UK advised to develop road pricing

The UK must put in place nationwide road pricing to counter traffic congestion and start reducing vehicle carbon dioxide emissions, according to a government-commissioned report published on 1 December. The report concludes that road pricing could halve congestion by 2025 and bring significant environmental and economic benefits totalling 41 billion euro a year.

Source: ENDS Europe Daily, 1 December 2006

Ministers agree compromise text

ON 23 OCTOBER, EU environment ministers reached agreement on a common position regarding the proposed new directive on air quality. The ministers essentially confirmed the so-called general approach reached by the Council on 27 June 2006.

In line with the Commission's proposal, the ministers argued that more so-called flexibility should be given to the member states. This means that where member states can demonstrate that they have taken all reasonable measures to implement the legislation but still need more time to comply with air quality standards in certain places, it is proposed that they be allowed to request a time-limited extension to the compliance deadline in the affected zone.

Key elements

Among the key elements included in the agreement are:

- A non-binding target value for PM_{2.5} in 2010 of 25 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) to be replaced by a binding limit value in 2015, also of $25\mu\text{g}/\text{m}^3$;
- The possibility for member states to postpone attainment of the limit values for PM₁₀ until three years after entry into force of the directive. (Note that these limit values are according to current legislation legally binding as from 2005.);
- The possibility for member states to postpone the deadlines for nitrogen dioxide (NO₂) and benzene by a maximum of five years, until 1 January 2015;
- The principle that limit values should apply everywhere, but

in certain locations compliance with limit values should not be assessed.



Happy about ministers' agreement.

Consequently, the ministers did not accept Parliament's proposal for longer time extensions up to 2014, or for weakening the daily limit value for PM₁₀. Nor did they agree to Parliament's proposals to strengthen some of the PM limit values, i.e. an annual PM_{2.5} limit value of $20\mu\text{g}/\text{m}^3$ as from 2015, and an annual PM₁₀ limit value of $33\mu\text{g}/\text{m}^3$ as from 2010. (See AN 3/06, pp. 6–8.)

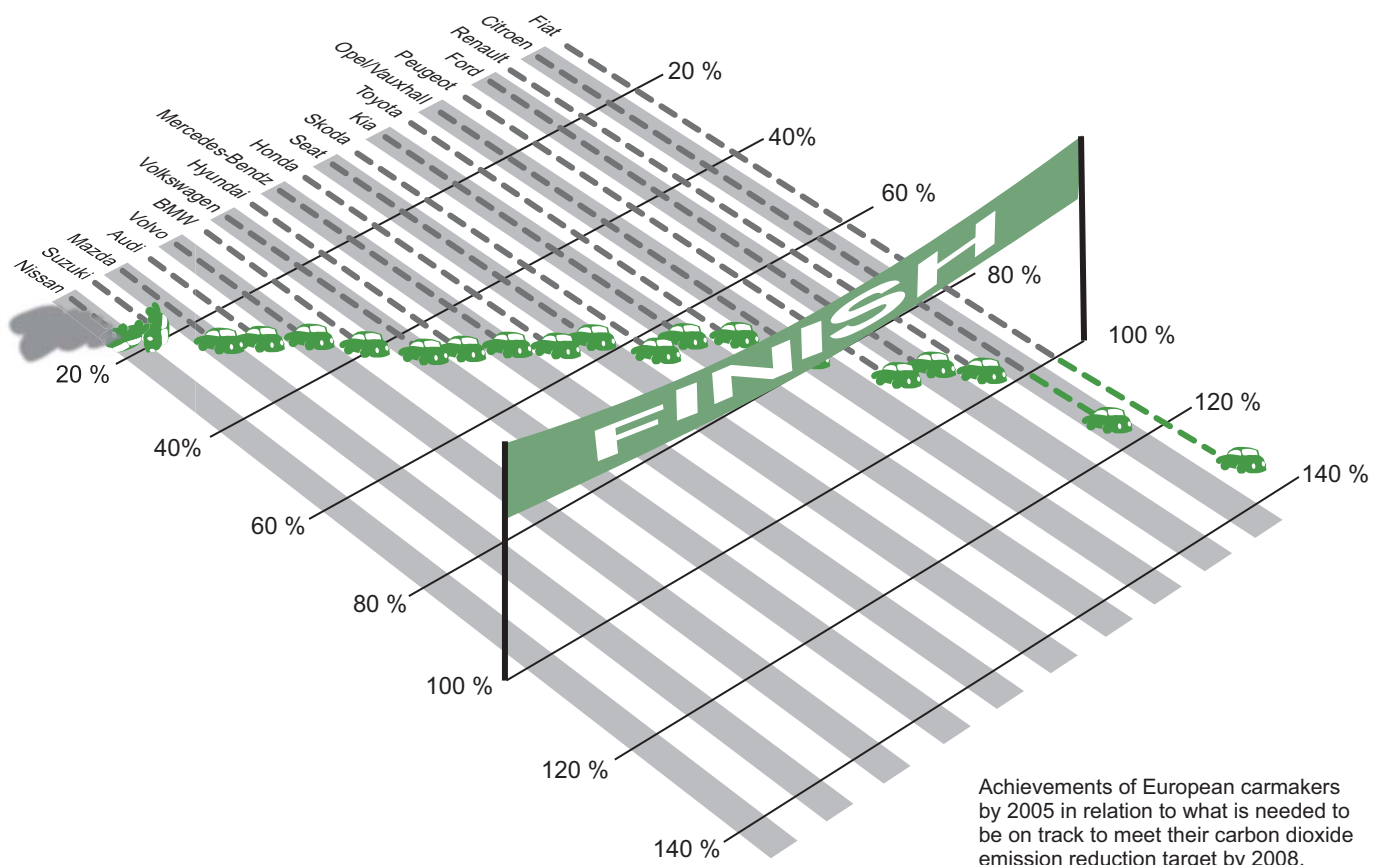
Ambition level too low

Environment commissioner Stavros Dimas welcomed the agreement, and said "The scourge of air pollution is still shortening European citizens' lives by an average of eight months. The Council's text endorses the approach and the level of ambition of the Commission's proposal for tackling this challenge."

Air pollution campaigner Kerstin Meyer of the European Environmental Bureau (EEB) concluded that the council's ambition level on PM_{2.5} was still too low. According to environmentalists and health groups, limit values for PM_{2.5} should be tightened further to match the air quality guidelines recently adopted by the World Health Organization (WHO).

After legal and linguistic checks the council agreement text will be confirmed as a common position and returned to parliament for a second reading, probably in the first half of 2007.

CHRISTER AGREN



CO₂ EMISSIONS

Car industry fails to meet climate target

THREE-QUARTERS OF the twenty major car manufacturers operating in Europe have failed to improve fuel efficiency at the rate needed to meet a key EU climate target, according to a new study published by the European Federation for Transport and Environment (T&E).

Improving the fuel efficiency of new cars is a key method of tackling climate change because the more fuel a car uses, the more of the greenhouse gas carbon dioxide (CO₂) is emitted into the atmosphere.

Using sales data between 1997 and 2005, the study has compared manufacturers' achievements at the end of the period with what they were expected to have achieved in order to be on track towards the target. The results show that three-quarters of carmakers are failing to cut emissions fast enough.

Nissan is the worst performer in Europe followed by Suzuki, Mazda. Audi, Volvo, BMW and Volkswagen. These seven brands all cut emissions at less than half the rate needed to meet their commitment. Toyota, maker of the low-emission Prius hybrid, is also failing to improve efficiency across its range at the rate needed.

Fiat is the best performer in Europe, followed by Citroen, Renault, Ford and Peugeot. All five are on track to meet or exceed the target by 2008.

The findings will increase the pressure on the European Commission to come forward with a legally binding EU target on CO₂ emissions from cars. "Clearly the target is achievable, but as long as 75 per cent of car makers go unpunished for their failure, we will never

make the necessary progress," said Aat Peterse of T&E. "Europe must kiss its voluntary targets goodbye and waste no more time in coming up with legally-binding measures to double fuel efficiency in the next decade. Individual carmakers must be held responsible and punished if they fail."

The study concludes that if climate targets are to be met, companies must improve efficiency across their entire range. One or two very efficient models that sell in limited numbers are not enough.

CHRISTER AGREN

The report "How clean is your car brand?" is available online at: http://www.transportenvironment.org/docs/Publications/2006/2006-10_how_clean_is_your_car_brand.pdf

Cost of inaction will be enormous

Allowing greenhouse gas emissions to continue to increase may cost up to 20 per cent of global GDP, former World Bank chief economist Nicholas Stern concludes.

THE MOST COMPREHENSIVE review ever carried out on the economics of climate change, the Stern report, estimates that if greenhouse gas emissions continue increasing at their present rate, the cost could be 5–20 per cent of GDP per year.

Published on 30 October, the review was commissioned by the UK government and carried out by a team of economists led by former World Bank chief economist Sir Nicholas Stern.

Optimistic conclusion

“The conclusion of the review is essentially optimistic,” said Sir Nicholas Stern. *“There is still time to avoid the worst impacts of climate change, if we act now and act inter-*

nationally. But the task is urgent. Delaying action, even by a decade or two, will take us into dangerous territory.”

The first half of the review focuses on the impacts and risks arising from uncontrolled climate change, and on the costs and opportunities associated with action to tackle it. The second half examines the national and international policy challenges of moving to a low-carbon global economy.

Early action beneficial

The team used a number of different techniques to assess costs and risks of climate change, and the evidence gathered led to the simple conclusion that the benefits of strong and early action far outweigh the economic costs of not acting.

Based on results from economic models, it is estimated that if no

action is taken, the overall costs and risks of climate change will be equivalent to losing at least five per cent of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20 per cent of GDP or more.

In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around one per cent of global GDP each year.

Down to our generation

Commenting on the Stern report Charlie Kronick of Greenpeace UK said: *“This report says it’s down to our generation to defeat climate change or the costs we pass on to our children will be unbearable. We need to spend one per cent of GDP on climate change. That’s the same*



Stern statements

From the executive summary of the Stern report:

Climate change could have very serious impacts on growth and development.

All countries will be affected. The most vulnerable – the poorest countries and populations – will suffer earliest and most, even though they have contributed least to the causes of climate change. The costs of extreme weather, including floods, droughts and storms, are already rising, in rich countries as well.

Action on climate change is required across all countries, and it need not cap the aspirations for growth of rich or poor countries.

The costs of taking action are not evenly distributed across sectors or around the world. Even if the rich world takes on responsibility for absolute cuts in emissions of 60–80 per cent by 2050, developing countries must take significant action too. But developing countries should not be required to bear the full costs of this action alone. Action on climate change will also create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly

The costs of stabilizing the climate are significant but manageable; delay would be dangerous and much more costly.

The risks of the worst impacts of climate change can be substantially reduced if greenhouse gas levels in the atmosphere can be stabilized between 450 and 550 ppm CO₂ equivalent. This is a major challenge, but sustained long-term action can achieve it at costs that are low in comparison to the risks of inaction. Central estimates of the annual costs of achieving stabilization between 500 and 550 ppm are around one per cent of global GDP, if we start to take strong action now. Costs could be even lower than that if there are major gains in efficiency, or if the strong co-benefits, for example from reduced air pollution, are measured.

Commission accepts Euro 6 NOx limit

Referring to a recent impact assessment study, the European Commission has announced recently that it now endorses extra EU curbs on emissions of nitrogen oxides (NOx) by diesel vehicles.

When it proposed new car emission standards (Euro 5) in December 2005, the Commission rejected calls to include even stricter second-stage Euro 6 limit values for NOx from diesel vehicles.

However, after it became clear that most member states as well as the European Parliament were in favour of Euro 6 standards, the Commission was forced to react. In October it organized a public hearing at which it presented an updated impact assessment for a Euro 6 limit.

The assessment concluded that the proposed Euro 6 limit of 80 milligrams per kilometre for NOx from diesel cars by 2014/15, would deliver an additional 24 per cent reduction in NOx emissions from light duty vehicles in 2020 at an additional cost of 213 euro per vehicle.

Source: ENDS Europe Daily, 7 November 2006. A press release from the European Commission and the impact assessment study are available at: <http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/06/409>

Air quality problem in EU cities

A study by the Italian research institute Ambiente Italia has surveyed 26 cities around the EU, looking at 20 environmental indicators such as air quality, public transport, waste and water management.

According to the study, fine particles (PM₁₀) are the worst emergency facing EU cities. In three quarters of cities surveyed, the EU's daily limit values for fine particles were exceeded more than 35 days a year, the current tolerated levels. In six of them, concentrations were more than three times over the limit value.

As for nitrogen dioxide (NO₂), several major cities, including London, Paris, Barcelona and Rome, have average annual concentrations that are more than double the EU's 40 µg/m³ target for 2010, while nearly half of 26 cities have at least one hotspot with emissions above this target.

Source: ENDS Europe Daily, 23 October 2006. An English summary of the study is available at: http://www.ambienteitalia.it/chisiamo_engl/pdf/Executive_sumamry_EN.pdf



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Enormously costly.

amount of money we spend on global advertising. Surely saving the planet is more important than billboards and TV adverts."

The report concludes that greenhouse gas concentrations should be limited to somewhere in the range 450–550 parts per million (ppm). Anything higher would substantially increase the risks of

very harmful impacts, while only marginally reducing the costs of emission cuts.

CHRISTER ÅGREN

The report "Stern Review: **The Economics of Climate Change**" can be downloaded at: http://www.hm-treasury.gov.uk/Independent_Reviews/stern_review_economics_climate_change/stern_review_index.cfm

A range of options exists to cut emissions: strong, deliberate policy action is required to motivate their take-up.

Emissions can be cut through increased energy efficiency, changes in demand, and through adoption of clean power, heat and transport technologies. Climate change is the greatest market failure the world has ever seen, and it interacts with other market imperfections. Three elements of policy are required for an effective global response. The first is the pricing of carbon, implemented through tax, trading or regulation. The second is policy to support innovation and the deployment of low-carbon technologies. And the third is action to remove barriers to energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change.

There is still time to avoid the worst impacts of climate change, if we take strong action now.

The investment that takes place in the next 10–20 years will have a profound effect on the climate in the second half of this century and in the next. Our actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes. So prompt and strong action is clearly warranted.

Domestic measures not enough to reach target

Present measures and policies will only reduce EU greenhouse gas emissions by less than one per cent, while the Kyoto protocol demands eight per cent reduction by 2012.

THE EU CAN MEET its undertakings under the Kyoto Protocol. But the margin is small and success depends on a number of states doing considerably more than they promised.

The new EU member states are all on course to meet their undertakings to reduce greenhouse gas emissions under the Kyoto Protocol. For the 15 original member states the picture is not so rosy. The measures agreed so far by the EU15 are totally inadequate to reduce emissions by the promised eight per cent by 2012. Without further measures, emissions will fall by only 0.6 per cent. This is the conclusion of a recent report from the European Environment Agency (EEA).¹

EU15 emissions rises

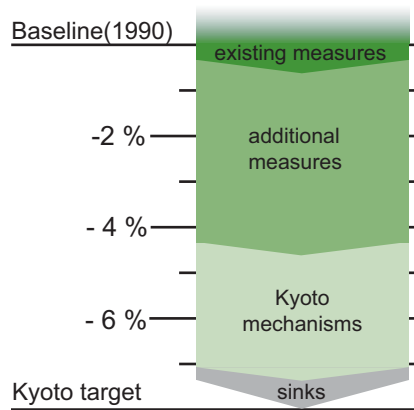
Over the last five years emissions of greenhouse gases have risen in the EU15. In 2004 emissions reached the highest level since 1996. Nevertheless, according to the EEA it is still possible for the EU15 to fulfil its commitment under the Kyoto Protocol – but only just. It is not sufficient that a string of additional measures are being taken to limit emissions. Several member states report that they intend to take advantage of the Kyoto Protocol's flexible mechanisms, which allow them to offset emissions by supporting projects in developing countries. A few also intend to use carbon sinks.

Despite this, according to the EEA the EU will only meet its Kyoto targets if a few member states reduce their emissions considerably more than they are required to, and hence compensate for the failure of the others.

Heroes and zeroes

The figures from the EEA report clearly identify the heroes and

zeroes on the European climate stage. Spain has a lead role among the latter. Under the EU's burden-sharing agreement the country is entitled to increase its emissions by 15 per cent, but will widely overshoot this mark. According to EEA forecasts it will exceed this target



Additional measures, Kyoto mechanisms and a limited use of carbon sinks will be required to reach the EU Kyoto target of eight per cent emission reduction, the European Environmental Agency concludes.

by around 25 per cent. Other states that are failing to meet their climate targets, despite being allowed to increase emissions over 1990 levels, are Portugal and Ireland. One of the main heroes is the UK, which will meet its tough target (-12 per cent) with more than a 10-per-cent margin. The UK and Sweden are the only EU15 states that consider the measures they have taken are sufficient to achieve the target.

Total emissions by the new EU member states (EU10) in 2004 were 23 per cent lower than 1990 levels, and they will meet their Kyoto targets by a broad margin. (Malta and Cyprus have no Kyoto targets.) The trend among the EU10 is, according to the EEA, mainly a consequence of economic and structural changes in these countries following the tran-

sition to a market economy, which has resulted in the disappearance of ageing, energy-intensive and highly polluting industry.

Kyoto mechanisms

Eight member states have reached a decision to use the Kyoto Protocol's flexible mechanisms and earmarked funds for this purpose: Austria, Belgium, Denmark, Finland, Ireland, Netherlands and Spain.

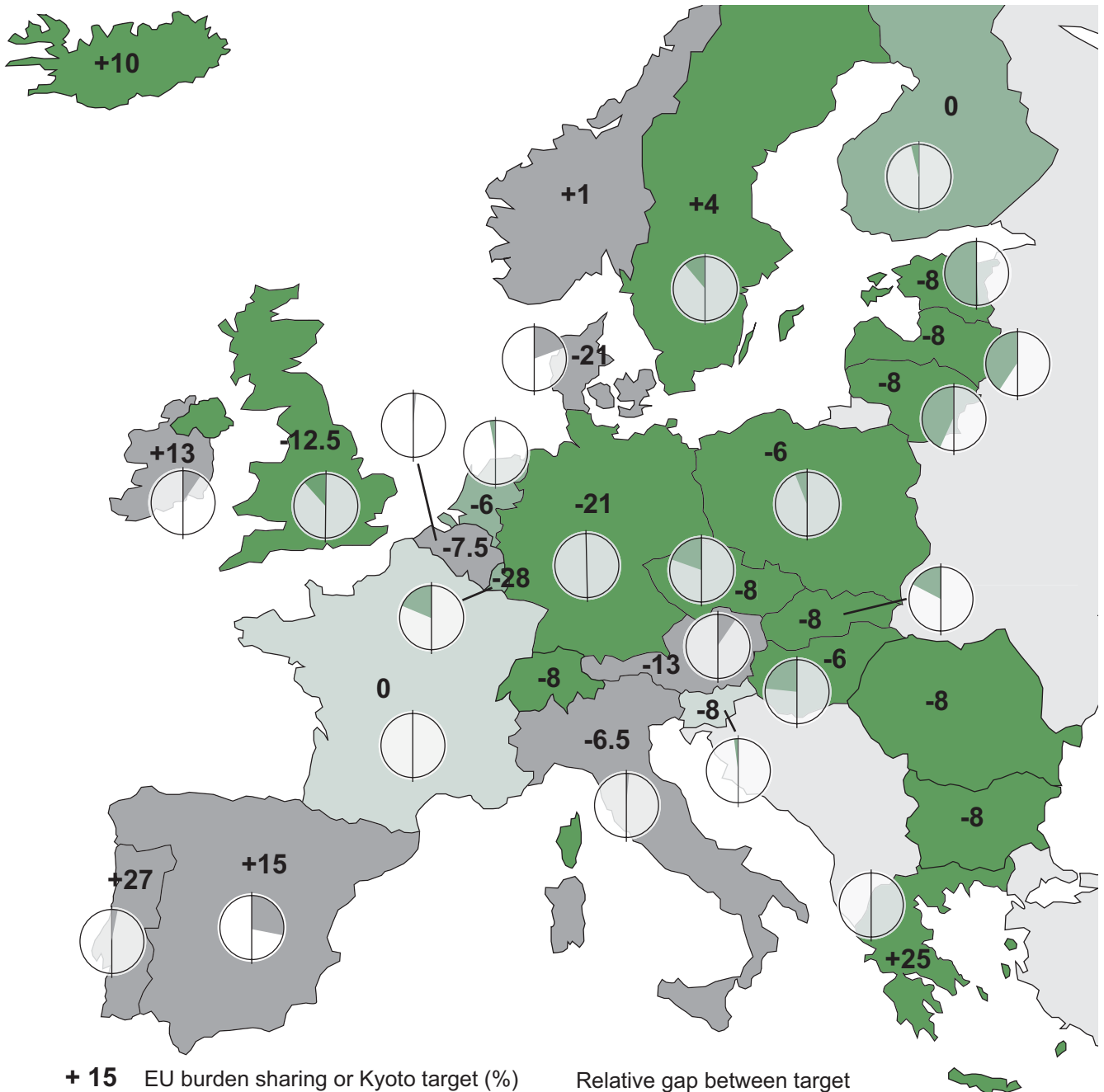
A further four states have confirmed that they intend to use flexible mechanisms, but have not yet set aside funds: France, Luxembourg, Portugal and Slovenia. Slovenia is alone among the new Member States in wanting to use this option. Germany and the UK project they will achieve their targets without using Kyoto mechanisms.

Transport sector tailing behind

The emissions trend in the various sectors of society demonstrates a familiar pattern. Most sectors have reduced their greenhouse gas emissions. These include energy production, industry, agriculture and waste management. The exception is the transport sector, with a rise of over 25 per cent in emissions between 1990 and 2004.

The EEA forecasts that emissions from energy production, agriculture and waste management will continue to fall as a result of measures already taken and planned. In the best case, emissions from industry and the transport sector may be stabilized at current levels. Without further measures, emissions from the transport sector in 2012 will be 35 per cent higher than in 1990.

The explanation for the trend in the transport sector is primarily that improvements in the environmental performance of individual

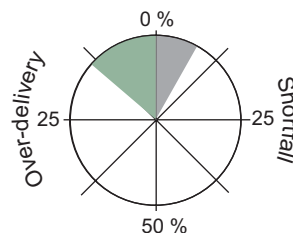


+ 15 EU burden sharing or Kyoto target (%)

Reaching target:

- with domestic measures
- + Kyoto mechanisms
- + Kyoto mechanisms and/or sinks
- Not reaching target

Relative gap between target and projection for 2010



vehicles are overwhelmed by the growing number of vehicles and increased volume of transport. Average carbon dioxide emissions from individual cars fell by 12 per cent between 1995 and 2004, but the number of vehicles rose by 21 per cent over the same period.

The EEA also points out that EU carbon dioxide emissions from in-

ternational aviation and navigation – not addressed under the Kyoto Protocol – increased by 59 per cent between 1990 and 2004.

ROGER OLSSON

¹ EEA Report no. 9 /2006: Greenhouse gas emission trends and projections in Europe 2006. Available at http://reports.eea.europa.eu/eea_report_2006_9/en

A greenhouse gas emissions map of Europe 2005. The colour of each country indicates whether it will reach its Kyoto target or not. The circles indicated projected shortfall or over-delivery relative to target. Among EU member states, Malta and Cyprus do not have any reduction targets under the Kyoto Protocol.



Pollution - now at your fingertips.

EPER industrial emissions register updated

The EU's internet-based public register of industrial emissions to air and water, the European Pollutant Emission Register (EPER), has recently been updated with the latest emissions data from some 12,000 industrial installations across Europe.

The new figures for 2004 can now be compared with those for 2001 for a number of pollutants, installations, industrial activities or member states, and for the first time, installations in the ten new member states are covered.

EPER covers the emissions of 50 air and water pollutants produced by large and medium-sized industrial facilities. The register is publicly accessible on the internet. Anyone can search the register according to various criteria, such as the name of a specific industrial facility, its postcode, address or location, by activity sector, by name of pollutant, or using a combination of any of these.

A review of the emissions register will be published in spring 2007. Following this review EPER will be replaced by the European Pollutant Release and Transfer Register (PRTR) – the first edition is expected to be published in the autumn of 2009.

PRTR will be more comprehensive than EPER since it will cover more than 91 substances emitted from industrial installations in 65 different sectors of activity, and from other sources such as road traffic, domestic heating and agriculture. It will also include transfers of waste and wastewater from industrial facilities to other locations.

For more information, see the EPER website: www.eper.ec.europa.eu

Still hope despite slow progress

THE CLIMATE CONFERENCE in Nairobi this November reached an agreement on how to move towards negotiations for a “son of Kyoto” protocol. However, it is rather vague and it came at a cost. China and other developing countries were assured that they would remain exempt from mandatory emission cuts in the near future, despite the fact that carbon dioxide emissions are skyrocketing in China, India and Brazil. China is expected to overtake the US as the top carbon dioxide emitter in the world by 2010, according to the International Energy Agency.

No dispute on science

One positive achievement at the Nairobi meeting was that, for the first time at an international conference on climate politics, the scientific evidence for the causes of climate change was not disputed. Still, the position of China and other rapidly developing poor countries and the continued US rejection of the Kyoto pact made it one of the least productive of these meetings since the Kyoto Protocol was agreed in 1997. Even if the Nairobi conference was not expected to deal with major issues, setting a deadline for reviewing past progress and negotiating a new agreement was considered vital. However, all that could be agreed was to postpone further discussions on this matter until 2008. On the other hand, some progress was made in the debate on the Climate Convention and in the ad-hoc working group on future commitments under the Kyoto Protocol, where a working plan for a post-Kyoto agreement was outlined.

Fear of gap in 2012

“If a new agreement is to be in place when the Kyoto Protocol expires by

the end of 2012, negotiations must be finished no later than 2009. The progress made in Nairobi means there is still hope that this will be possible,” says Reinhold Pape of the Swedish NGO Secretariat on Acid Rain.

It is not only NGOs that fear the consequences of a situation in which the Kyoto protocol expires without a new agreement in place. *“If we have a gap in 2012 we would have a very serious problem,”* the UK Secretary of Environment David Miliband said in an interview with The Independent. *“The whole system would be in tatters.”*

EU must take first step

According to European NGOs, industrialized countries should make binding commitments to reduce their greenhouse gas emissions by at least 30 per cent by 2020 and by at least 50 percent by 2050. A first step in this direction and a crucial signal to developing countries would be an EU decision on a 30-per-cent target for reducing greenhouse gas emissions, to be taken during Germany's presidency in the coming spring. *“Developing countries will not move ahead unless they see that the industrialized world is willing to take on new, binding targets beyond Kyoto,”* Reinhold Pape says.

The Nairobi meeting demonstrated, once again, that the lack of confidence between industrialized and developing countries is a major obstacle for progress and agreements in international climate politics. *“The gap between the science and the politics remains large, with industrialized and developing countries divided by priorities and divided among themselves,”* David Miliband concluded.

Increasing emissions

The refusal of the US to join the

Tax breaks for diesel filters in Germany

On 29 November the German cabinet finally agreed tax incentives for particle filters on existing as well as new diesel cars. The law will enter force in April 2007 and will provide a tax reduction of 330 euros. It applies to diesel cars equipped with particle filter as from 1 January 2006 up to 31 December 2009. Non-equipped vehicles will pay around 20 euros extra. Filters must cut emissions to 5 mg/km, the planned EU legal standard for new cars from around 2008.

Source: Press release from the German environment ministry, 30 November 2006.

Dimas getting tough on Naps

The European Commission has demanded that member states set much tougher caps on carbon emissions in their national allocation plans (Naps) for the second phase of the EU's emission trading scheme. In decisions taken on ten plans on 29 November the commission called for an average cut in emissions of seven per cent compared to draft Naps submitted by governments.

The decisions concern Naps from Germany, Greece, Ireland, Latvia, Lithuania, Luxembourg, Malta, Slovakia, Sweden and the United Kingdom. These represent 42 per cent of allowances distributed in the first phase. All except the UK have been told to cut their allocation to firms. Five have been told to make cuts of at least 25 per cent.

Source: ENDS Europe Daily, 29 November 2006

Industry wants stricter NOx limits

Stricter limits on emissions of nitrogen oxides (NOx) from diesel cars can and should be introduced far more quickly, according to Yara International, a company that makes air pollution mitigation products.

The effect of current legislative proposals, concludes Yara, would be that European car manufacturers, for the next eight years at least, are forced to export cleaner cars to the US and Japan than will be made available on the European market.

Source: ENDS Europe Daily, 20 October 2006



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No need to rush, climate negotiators think.

Kyoto process is of course one of the main reasons for the stalemate. Current emission trends is another, giving the developing world little reason to believe that industrialized countries are committed to substantial emission cuts. Since 1990, emissions of carbon dioxide in the United States have grown by 16 per cent. In Canada and Australia the increase has been 30 per cent, and even in the EU emissions have increased over the last few years.

On top of this, progress has been very limited in two areas covered by the Kyoto Protocol and of great importance to the developing world: technology transfer and the Adaptation Fund. At the Nairobi meeting, China complained that rich countries have not moved quickly enough to supply new technologies to help poor countries curb emissions.

Adaptation fund delayed

The Adaptation Fund is intended to provide economic resources for developing countries to mitigate the effects of climate change. There

was hope that the Nairobi meeting would focus on this issue and take a substantial step forward, especially since this was the first meeting of the parties to the UN Climate Convention held in Africa, the continent that will be most severely affected by global warming. However, the meeting only succeeded in agreeing on some principles for the fund, meaning further delay until it can be in operation.

Jan Kowalzig, climate campaigner at Friends of the Earth Europe, commented: *"The Adaptation Fund may raise at most 300 million euro between 2008 and 2012, while the World Bank predicts that the most vulnerable developing countries would actually need one hundred times this amount, annually."*

"The conference has let Africa and the rest of the developing world down," said Antonio Hill, an Oxfam policy adviser. *"It has put forward only vague promises to help the world's poorest countries adapt to climate change."*

ROGER OLSSON

Pilot test for sulphur offsetting

Offsetting is a quicker and cheaper way to reduce emissions than individual sulphur limits for each vessel, ship owners and oil industry claims.

THE CROSS-INDUSTRY GROUP of ship owners and oil companies, SEAA^T, has over the last year performed a pilot exercise¹ to investigate the potential for “offsetting” sulphur emissions from ships in the North Sea. Offsetting is in this context defined as a simple way of balancing that allows some ships to exceed emission limits while others perform better than the limit – thus allowing a consortium of ships to jointly, as an average for the whole group of ships, achieve the regulatory limit set for individual ships.

In total, 58 ships from seven companies participated in the pilot project and regularly reported on operational data, such as fuel consumption and position when inside the North Sea sulphur emission con-

trol area (SECA). At the outset, each operator chose whether they would use marine gasoil with a maximum sulphur content of 0.2%, emission abatement equipment (seawater scrubber with an assumed sulphur abatement efficiency of 93%), or heavy fuel oil with the same sulphur content as in present operations (ranging from 1.1% to 3.3%).

It should be noted that the sulphur abatement options were applied only in theory, not in practice. According to SEAA^T, the figure on assumed abatement efficiency of seawater scrubbing is based on recent operational test results from practical application of this technology onboard a ship.



Flexibility at sea - the SEAA^T is in favour.

23 percent better performance

At the end of the test, which lasted from April 2005 to March 2006, an excess of emission credits had been generated, and the overall result was that the pilot fleet had an estimated 23 per cent better environmental performance than required under the SECA regulation. The SECA requirement, which enters into force for the North Sea next autumn, is a maximum fuel sulphur limit of 1.5%, while the pilot fleet theoretically achieved a level equivalent to 1.2%.

Significantly cheaper

According to the report, the pilot exercise demonstrated that compliance through offsetting can be significantly cheaper than if all vessels were to individually meet the 1.5% fuel sulphur limit. This conclusion is based on calculations showing that if the premium price for 1.5% fuel were US\$50/tonne, the overall theoretical cost saving for the fleet of 58 ships would be nearly US\$10 million, or close to 10 per cent lower than if all ships were to use 1.5% sulphur fuel. At a price premium of about US\$33/tonne fuel or less, there would be no cost savings.

In order to compare the costs

Cost estimates

Low-sulphur fuel is more expensive to produce than standard grades. Estimates of how much more expensive vary somewhat, primarily depending on assumptions made regarding the economic lifetime of investments and the discount rates applied.

According to recent estimates by the oil industry organization CONCAWE¹, the price premium for 1.5% heavy fuel oil would be between 10 and 25 euro/tonne (the higher figure assumes this limit to apply to all marine HFO sold in the EU). Meeting the stricter sulphur limit of 0.5% would increase the price by 45–65 euro/tonne fuel.

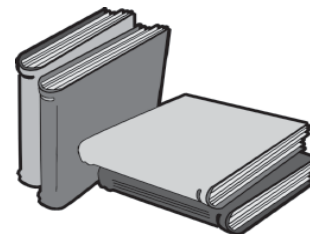
The European Commission consultancy, IIASA², has estimated that the price premium for producing 1.5% sulphur fuel for the Baltic Sea and North Sea SECAs will be about 9 euro per tonne of fuel, increasing to 19 euro/

tonne if applied to all fuel consumed in all European sea areas. Reducing the sulphur content even further to 0.5% is estimated to result in a price premium of nearly 40 euro/tonne.

The estimates by IIASA have been calculated using a discount rate of four per cent and an assumed economic lifetime for investments of 20 years, while CONCAWE has applied a “capital charge” of 15 (or sometimes 25) per cent.

¹ **Techno-economic analysis of the impact of the reduction of sulphur content of residual marine fuels in Europe** (June 2006). CONCAWE report No. 2/06.

² **Analysis of Policy Measures to Reduce Ship Emissions in the Context of the Revision of the National Emissions Ceilings Directive** (Interim report, October 2006). By IIASA, Entec UK, and MET.NO.



Recent publications

Annual European Community LRTAP Convention Emission Inventory 1990–2004 (2006)

Report presenting European Community air pollution data for the years 1990–2004. The report provides an overview of emission trends and data availability for the EU25. EEA Technical report No 8/2006. Can be downloaded from: http://reports.eea.europa.eu/technical_report_2006_8/en

Marine emissions reduction options (2006)

Focussing on the Hong Kong and the Pearl River Delta Region, the report looks at current emissions and their effects, and various options for reducing them. Published by Civic Exchange, an independent Hong Kong-based public policy think tank. 44 pp. Can be downloaded from: <http://www.civic-exchange.org/publications/2006/marineemissione.pdf>

Twelve virtuous examples: Measures to improve air quality and reduce particles (2006)

Four-page leaflet from the European Environmental Bureau (EEB) providing details on twelve examples of good measures to reduce air pollution. Copies of the leaflet can be ordered from the EEB, contact: press-stagiaire@eeb.org, or downloaded from the EEB website: http://www.eeb.org/activities/air/documents/Measures_to_improve_AQ.pdf

Sustainable mobility for all! How to reflect the needs of special groups in local policies to encourage sustainable mobility

Brochure aimed at supporting local authorities all over Europe in coping with the challenge of adapting their transportation networks to the demands of all users and implementing land use policies to facilitate sustainable mobility. 47 pp. Can be downloaded from: <http://www.smile-europe.org/>

of low-sulphur fuel and seawater scrubbing, in this study the latter has been calculated based on spreading the total costs over five years of fuel consumption, resulting in a range of additional costs between US\$35 and 72/tonne of fuel. This could also be compared to the price premium for marine gas oil containing less than 0.2% sulphur, which is said to be about US\$250/tonne.

Avoiding hotspots

Based on the assumptions made in the study regarding the costs and abatement efficiency of seawater scrubbing, it is concluded that in an offsetting regime, this technology would become economically attractive if the so-called “effective cost per tonne of fuel” were less than twice that of the 1.5% low-sulphur fuel premium. Without offsetting, scrubbing is only attractive if the effective cost per tonne is simply less than the low-sulphur fuel premium.

No effort was made in this project to avoid the possible formation of emission “hotspots”, but it is stated that a fully operational scheme would have to be designed for a geographical balance of emission

credit generators and purchasers to avoid pollution hotspots and protect sensitive areas.

Higher monitoring standards

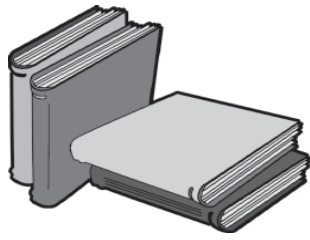
It is pointed out that apart from potential cost savings, an offsetting trading scheme could also provide higher standards of monitoring and enforcement, although no estimates have been made as to the extra costs of managing and supervising such a scheme.

Cor Nobel, secretary general of SEAA¹, says that offsetting is a better way to reduce emissions quickly because it provides an economic incentive that can drive emission abatement technologies as well the use of reduced sulphur fuels. Consequently, SEAA¹ believes the EU and IMO should introduce flexibility in their fuel sulphur limits to enable such schemes to operate.

CHRISTER ÅGREN

¹ **Sulphur Emissions Offsetting Pilot** (August 2006). Prepared by BMT Ltd for SEAA¹ (Shipping Emissions Abatement and Trading), an industry group of shipping and oil companies formed in 2002. More information about SEAA¹, as well as the report, can be found at: <http://www.seaat.org/>

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Recent publications

Towards sustainable urban transport policies: Recommendations for local authorities

Sustainable mobility aims to reconcile citizens' mobility needs with quality of life and the environment. The SMILE project aims to help local authorities cope with this challenge by presenting good practices and introducing innovative approaches. 68 pp. Can be downloaded from: <http://www.smile-europe.org/>

Clearing the air: The myth and reality of aviation and climate change (2006)

The report provides an analysis of the current state of aviation's contribution to global warming, gives an overview of the impact of aviation on climate change, and investigates some of the policy options to combat the impact of air transport on the global climate. Published jointly by the European Federation for Transport and Environment and Climate Action Network Europe. 47 pp. Can be downloaded at www.transportenvironment.org/Topic7.html

Heavy metal emissions, depositions, critical loads and exceedances in Europe (2006)

Analysis of emission scenarios up to 2020 for cadmium, lead, mercury, and six other metals, as well as estimates of deposition levels and resulting exceedances of critical loads. Published by the Dutch Ministry of Environment. 93 pp. For more information contact: j.p.hettelingh@mnnp.nl

A Price Worth Paying (2006)

Report by the European Federation for Transport and Environment providing a guide to the new "Eurovignette" directive that governs road tolls for lorries. Contains a summary of the opportunities opened up by the new rules, and a detailed explanation of the directive. 58 pp. Can be downloaded at: www.transportenvironment.org/Topic15.html

EU

Energy efficiency plan unveiled

IN OCTOBER THE COMMISSION presented its Action Plan for Energy Efficiency, which contains a package of more than 75 measures covering a wide range of cost-effective energy efficiency initiatives. The action plan is to be implemented over the next six years.

According to the Commission, a potential energy saving of 20 per cent by 2020 is technically and economically feasible. The realization of such a reduction in energy use could by 2020 lead to annual savings of 100 billion euro and 390 million tonne oil equivalents (Mtoe), whilst reducing the EU's CO₂ emissions more than twice as much as required by the Kyoto Protocol by 2012.

Ten priority actions

The plan contains ten priority actions, including:

- Minimum energy efficiency standards are to be developed under the energy-using products directive. The standards could be implemented as binding legislative targets or voluntary industry agreements. There will also be an upgrade of existing appliance energy-labelling schemes.
- Minimum binding efficiency requirements for new electricity, heating and cooling installations rated at less than 20 megawatts will be developed, and similar requirements for larger installations may also be developed.
- Possible proposal for legislation to ensure the EU meets its target level for average new vehicle emissions of 120 grams per kilometre by 2012.
- Review of the EU energy tax directive to take place in 2008, with the aim to facilitate a more targeted and coherent use of energy taxation. Possible use of tax credits as incentives for firms to produce and consumers to choose

products that are more energy efficient.

Praise from NGOs

In a joint statement, three environmentalist groups – Friends of the Earth, Greenpeace and WWF – applauded the energy efficiency target proposed by the Commission, i.e. to reduce total EU energy consumption by at least 20 per cent by 2020. However, they also warned that the action plan falls short of proposing legislation that is required to meet the target.

"The Commission's target to reduce energy wastage is welcome, but education programmes and voluntary measures are not going to cut it alone. If the EU is serious about becoming the most energy-efficient region in the world, the 20-per-cent target must be put at the heart of all policy areas," said Mahi Sideridou of Greenpeace.

On 23 November the Council of EU Energy Ministers welcomed the Commission's action plan on energy efficiency. It concluded that energy efficiency and energy savings contribute to the main policy objectives of Europe's energy policy as regards security of energy supply, competitiveness and sustainable development, including climate change.

Also on 23 November, the European Parliament's Industry and Energy Committee stated it wants the EU to be the most energy-efficient economy in the world by 2020.

CHRISTER AGRÉN

The action plan (Com 2006 645) and other related documents from the Commission can be downloaded from: http://ec.europa.eu/energy/action_plan_energy_efficiency/index_en.htm.

WWF, together with a number of partner organizations, has recently launched a web portal to help consumers find the most energy-efficient appliances and cars in Europe: <http://www.topten.info>.

Suffering from sulphur pollution

TOTAL EMISSIONS of sulphur dioxide in China reached 25.5 million tonnes in 2005, an increase of 27 per cent over levels in the year 2000, according to a recent report by the country's State Environmental Protection Administration (SEPA).

The increased use of coal as an energy source has been cited as the number one contributor to the increase in sulphur dioxide (SO₂) emissions. Coal accounts for approximately 70 per cent of China's energy consumption.

China has set a goal of cutting pollution output by ten per cent, adjusted for economic growth, over the next five years. In the latest assessment, SEPA announced that nationwide emissions of SO₂ grew to 12.7 million tonnes in the first six months – up 4.2 percent on the same period last year.

Bathing in acid rain

The government plans to cap SO₂ emissions at 23 million tonnes by 2010, according to its 11th Five-Year Plan (2006-2010), which maps out social and economic development over the next five years. According to Li Xinmin, deputy director general of SEPA's Department of Pollution Control, this is a compulsory target. SEPA has signed a set of documents with China's six largest electricity power companies, which will result in them reducing their emissions to set levels. Coal-fired power plants alone emit some 16 million tonnes

of SO₂ – more than 60 per cent of the total.

With Chinese factories discharging more and more SO₂, one third of China's territory was

bathed in acid rain last year, according to a parliamentary report. It showed that more than half the 696 Chinese cities and counties monitored had experienced acid rain. In some regions, every rainy day was an acid rain day, according to the pollution control inspection report released

by the country's top legislature in August and submitted to the Standing Committee of the National People's Congress.

Every second city polluted

Moreover, in October SEPA reported that air quality in nearly half of China's cities was moderately or seriously polluted. In cities with a population exceeding one million people, sulphur dioxide and particulate matter are the top pollutants.

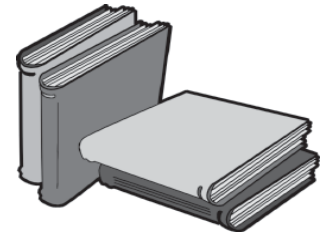
SEPA has estimated that each tonne of SO₂ emissions may cause approximately 20,000 yen (about US\$2,500) of economic damage. Thus, the 25.5 million tonnes of total SO₂ emissions in 2005 would have caused economic losses of more than 500 billion yen (\$63 billion) to the Chinese economy.

CHRISTER AGREN

Sources: Xinhua News Agency (<http://www.xinhuanet.com/english/>)



Withering away?



Recent publications

Critical loads for copper, nickel, zinc, arsenic, chromium and selenium for terrestrial ecosystems at the European scale (2006)

Provides a preliminary assessment of critical loads for forest soils and agricultural soils, as well as maps showing the geographical distribution in Europe for each metal and effect separately. Report commissioned by the Dutch Ministry of Environment and prepared by the Dutch consultancy Alterra. 45 pp. Alterra report 1355. Can be downloaded at: <http://www2.alterra.wur.nl/Webdocs/PDFfiles/Alterraraapporten/AlterraRapport1355.pdf>

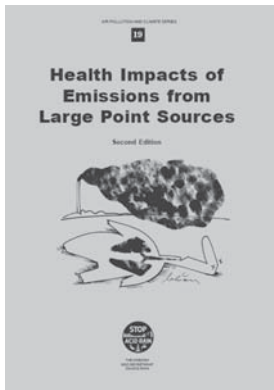
Drowning in Process? The Implementation of the EU's 6th Environmental Action Programme (2006)

This study evaluates the implementation of the 6EAP. The key findings are summarized in four tables, providing an assessment of whether the main objectives have been achieved, whether there has been progress towards their achievement or no significant progress at all. The report was prepared for the European Environmental Bureau by the Institute for European Environmental Policy. 75 pp. Can be downloaded from: www.eeb.org/Index.htm

Workshop on the importance of non-technical measures for reductions in air pollutants and how to consider them in integrated assessment modelling (2006)

Report from a workshop held in December 2005 on non-technical measures for emission abatement, organized by the Swedish ASTA programme in collaboration with the Task Force on Integrated Assessment of the LRTAP Convention. Published by the Swedish Environmental Research Institute. 71 pp. Can be downloaded from: <http://asta.ivl.se>

Recent publications from the Secretariat

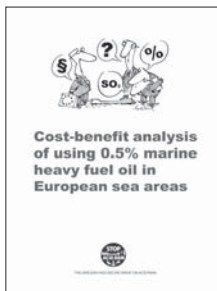
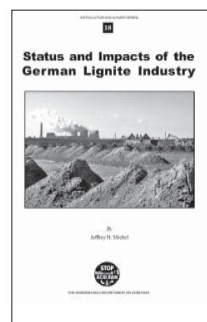


Health Impacts of Emissions from Large Point Sources

This study combines the health impact assessment methodology used by EU's CAFE programme with an emissions database for European large point sources, to assess health damage linked to emissions of nitrogen oxides and sulphur dioxide on a plant by plant basis. It finds that the emissions from large point sources in Europe could be responsible for more than one million life years lost in Europe every year. Some of the worst polluting plants may each be responsible for the annual loss of between 10,000 and 20,000 life years. By Mike Holland, EMRC. Second Edition, March 2006.

Status and Impacts of the German Lignite Industry

This report includes a historical treatment of German lignite use and discusses many of the hidden costs involved: excessive greenhouse gas emissions, depletion of groundwater resources, and destruction of hundreds of villages. Special consideration is paid to eastern Germany, where lignite accounts for up to 85 per cent of electrical power consumption in some regions. By Jeffrey H. Michel, April 2005.



Cost-benefit analysis of using 0.5% marine heavy fuel oil in European sea areas

A lowering of the sulphur content of marine heavy fuel oil to 0.5 per cent would reduce SO₂ emissions from international shipping around Europe by more than three quarters by 2010. The benefits of such a measure clearly outweigh the costs, according to this study. By Christer Ågren, January 2005.

Atmospheric emissions from large point sources in Europe

This report identifies and lists the 200 largest emitters of sulphur dioxide and the 200 "best" fossil-fuelled power stations, in terms of SO₂ and NO_x emissions per useful output. By Mark Barrett, SENCO. Published 2004.



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LRTAP Convention Executive Body. Geneva, Switzerland, 11–14 December. Information: <http://www.unece.org/env/lrtap/>

EU Council of Environment Ministers. 18 December. Information: http://www.consilium.europa.eu/cms3_fo/index.htm

European Renewable Energy Policy Conference. Brussels, Belgium, 29–31 January 2007. Information: <http://www.erec-renewables.org/>

Bioenergy Europe 2007: Markets and finance for biofuels and biomass. London, UK, 5–6 February 2007. Information: <http://www.environmental-finance.com/conferences/2006/Bio07/intro.htm>

Clean ships: Advanced technology for clean air. San Diego, California, USA, 7–9 February 2007. Information: <http://www.epa.gov/cleandiesel/ports>

EU Council of Environment Ministers. 20 February 2007. Information: http://www.consilium.europa.eu/cms3_fo/index.htm

World Sustainable Energy Days 2007. Wels, Austria, 28 February – 2 March, 2007. Information: www.wsed.at

Air pollution and its relations to climate change and sustainable development – Saltsjöbaden 3. Göteborg, Sweden, 12–14 March 2007. Information: <http://asta.ivl.se/>

6th International Conference on Urban Air Quality. Cyprus, 27–29 March 2007. Information: www.urbanairquality.org

FINE! Dust-Free. Klagenfurt am Wörther-see, Austria, 29–30 March 2007. Information: www.feinstaubfrei.at

LRTAP Convention Working Group on Strategies and Review. Geneva, Switzerland, 16–20 April 2007. Information: <http://www.unece.org/env/lrtap/>

IMO BLG 11 – Revision of MARPOL Annex VI. London, UK, 16–20 April 2007. Information: <http://www.imo.org/>